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ABSTRACT

A study examined existing partnerships between Technical and Further Education (TAFE) and industry in Australia and explored possible alternatives or additional mechanisms and structures for cooperating on course development and implementation. The 9-month investigation included a study of the use of joint facilities in five states, a study of training models used in industry, and an examination of ways of integrating on- and off-the-job training within traineeships. The TAFE/industry partnership picture was found to be very patchy. Excellent examples of effective relationships in TAFE course development were found; however, these excellent relationships were not nearly so widespread in the area of TAFE course implementation. The following were identified as ways of improving TAFE/industry partnerships: (1) form the highest possible TAFE/industry/training policy committee at the state levels; (2) have industry commission TAFE to develop and help implement all components of publicly accredited industry training curricula and commission TAFE to help develop other training programs; and (3) have industry provide TAFE with modern equipment, either at TAFE colleges, skills centers, or industrial sites. (MN)

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TAFE INDUSTRY PARTNERSHIP

towards more effective relationships in course development and implementation

A DISCUSSION PAPER

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TAFE/INDUSTRY PARTNERSHIP: Towards more effective relationships in course development and implementation.

A DISCUSSION PAPER

William C. Hall

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FOREWORD

THE TAFE/INDUSTRY PROJECT

The TAFE/industry liaison project has six components. Three components deal with the joint use of facilities:

(a) in Western Australia
(b) in South Australia
(c) in Victoria, New South Wales and Queensland.

(a) is published as a draft report (Gallagher, A.P., (1987) Ways and means of promoting shared facilities between TAFE and industry in Western Australia, Adelaide: TAFE National Centre for Research and Development) and is available through the TAFE National Clearinghouse.

(b) is an internal document prepared by the South Australian Department of Technical and Further Education.

(c) is published by the Centre: Sheldrake, P., (1988) The technical and further education system and industry: joint use of facilities, Melbourne: Nelson-Wadsworth.

The fourth component to the project considers the training models used in industry and is also published by the Centre:

(d) Bone, J., (1988) Training models used in industry, Melbourne: Nelson-Wadsworth.

The authors of (c) and (d) are not employed in TAFE. John Bone is the head of the training section of a major industry and the Peter Sheldrake worked as a private consultant. Their views are all the more refreshing because they approach their topics without strongly held opinions.

The fifth component of the project emphasises course development and implementation:

(e) Hall, W.C., (1988) TAFE/industry partnership: towards more effective relationships in course development and implementation, Melbourne: Nelson-Wadsworth.

Although done as parallel research, this report did also draw on relevant sections of the other four components, and some of the interviewing for it was done as part of (d). This is intended to be a discussion paper.

The sixth component of the project is an audio cassette recording of a discussion by a group drawn from industry, training and TAFE. This recording, together with the single Summary report of the whole project (obtainable from the Centre) can form the basis of workshops on TAFE/industry liaison which colleges may wish to conduct. Notes giving suggestions on how to conduct the workshop are provided with the cassette:

(f) Hall, W.C. [Ed.], (1988) TAFE/industry partnership: a discussion, Melbourne: Nelson-Wadsworth.

The project was partly funded by the Victorian TAFE Board.

CONTENTS PAGE

FOREWORD iii

A. INTRODUCTION AND ISSUES TO CONSIDER 1

1. Introduction 1
2. Issues to consider 2

B. ANALYSIS 5

3. Introduction 5
4. The investigation 6
5. Training structures 7
6. Industry training 11
7. TAFE training 17
8. Overseas experiences 21

C. A WAY AHEAD 27

9. Introduction 27
10. The need for partnership 27
11. Increasing and improving training 31
12. Improving people partnership 34
13. Sharing facilities and equipment 38

D. CONCLUSIONS 43

14. Conclusions 43
15. Acknowledgements 44

E. NOTES 45

PART A. INTRODUCTION AND ISSUES TO CONSIDER

1. INTRODUCTION

1.1 TAFE needs industry and industry needs TAFE. An obvious statement but one which is frequently only half stated. The statement assumes that good relationships should exist and that there must be effective TAFE/industry liaison. In fact, where there are existing working relationships, they are considered to be good; and there is widespread recognition that TAFE is doing a vitally important job. Nevertheless, improvements are possible.

1.2 The industrial background to this report is well known. Around 20% of our export trade is in the form of manufactured products whereas the OECD average is over three times that. Australia has also been well below other OECD countries in its percentage export of value added products. The educational background is also well known. We have a system of schooling which treats university aspirants as successful students and all others as failures. Technology is a foreign term in many of our schools. In 1986 54% of the workforce had no post-school qualification and only 9.5% had a degree or equivalent qualification. It is against these backgrounds that this report has been produced. It has been written for a general readership and has therefore (purposely) not been written as a conventional research document. Nevertheless, researchers will need to be satisfied that the usual research tools have been used and that proper analyses have been conducted. Therefore, throughout the report, numbers in parenthesis refer the reader to the notes at the end of the document. These notes have been written with the researcher especially in mind.

1.3 We are fond of making comparisons between this country and 'overseas'. Let us then consider one overseas country: the United Kingdom. The wide dichotomy which exists between further education colleges and industry in the UK does not exist in this country. Also, in Australia a combination of on-the-job and off-the-job vocational education is common whereas it is fairly uncommon in the UK. Australia also has a strong tradition of TAFE off-campus teaching. Therefore, Australia compares very favourably with the UK so far as the relevance of TAFE courses is concerned. The point in making this comparison is to press home the fact that, so far as TAFE/industry liaison is concerned, there is a great deal of good work which has already been done in this country and much of it

is better than in some other countries. The main thrust of the report is to improve what is presently happening and to suggest changes which could lead to an even stronger liaison. These recommended changes deal with the following:

- legislation;
- streamlining of course development;
- approaches to improve liaison between TAFE and industry;
- monitoring technological change;
- shifting responsibilities for the management of off-the-job training and the location of industry trainer training centres;
- conditions of service of TAFE staff;
- middle management educational needs.

Of course, it would be foolish to ignore the fact that TAFE/industry tensions do exist. However, such tensions are not necessarily entirely negative in their effects.

1.4 Finally, this report has been produced during a period of rapid change. Whilst the report was being written, two TAFE authorities (Victoria and Queensland) underwent dramatic changes. Also, colleges throughout Australia are being encouraged to be entrepreneurial and so some statements in the report which were quite revolutionary when written will appear almost commonplace when the report is eventually read!

2. ISSUES TO CONSIDER

During the investigation, various issues were raised and these are posed as questions, below. The particular sections of the report to which they refer are shown in parenthesis, although other sections also deal with many of the issues.

Issues affecting liaison

. Should states/territories form the highest possible level TAFE/industry/training policy committees which report to the relevant Minister(s)? (Section 14.2);

. Should at least one pilot college in each state/territory be encouraged to provide facilities to local small business/industry as one way of helping TAFE/industry liaison? (Section 8.5);

. Is it feasible for the conditions of service of TAFE staff to include a requirement to develop and maintain TAFE/industry links? (Sections 12.3 and 12.6).

Issues affecting curriculum management

- How can the number of (operational) state committees involved in developing and accrediting TAFE courses be substantially reduced? (Section 7.3);

- What ways can be found to release those with substantial industrial expertise to teach in TAFE colleges? (Section 11.2 and 12.5);

- Should TAFE have greater management responsibility for on-the-job training (as well as its present off-the-job training responsibility) for all publicly accredited courses and, if so, how should it be funded? (Sections 9.2, 11.2 and 14.2).

Issues concerning curriculum development

- Should national core curricula be common across all states/territories and wherever appropriate should common teaching materials be developed? (Section 7.9);

- Should the structure of TAFE courses be based on industry career structures? (Section 7.11);

- What is the most appropriate course content structure (for example modular) to enable quick responses to industry needs? (Section 7.1-3);

- How soon during the development of a new process, or the manufacturing of new materials, should TAFE start to plan for training? (Section 10.3);

- What is the best national approach to monitor technological change and its likely effects on curriculum development and implementation? (Section 8.2);

- How can urgent steps be taken to produce retraining programmes for Australia's middle managers, including TAFE middle managers? (Section 12.9);

- Should joint industry/TAFE working parties be formed to monitor technological change (in areas such as materials, computing, biotechnology and business studies) to report to the Curriculum Projects Steering Group (CPSG) on these changes and their implications for curriculum development? (Section 10.5);

- Should there be a national approach (for each industry) to industry, labour market, occupational and training needs analysis? (Section 10.5);

- How can open learning vigorously be encouraged, especially as an approach to updating technical qualifications? (Section 11.4).

Issues for the federal government

- Should commonwealth funded trainer training service organisations in each state be amalgamated with TAFE in-service sections or those CAEs which mount formal adult education programmes? (Section 6.2);

- Should special 'seed' funds be made available by the Department of Employment, Education and Training to establish regional (especially non-metropolitan) TAFE/industry collaborative groups? (Section 8.1);

- Should special funds be made available by the commonwealth government to release selected TAFE lecturers for substantial and regular periods in industry? If so, should this be part of a detailed and careful consideration of how best to effect the release programme? (Section 12.4);

- What ways can be used to encourage industry to provide expensive (especially hitech) equipment to TAFE for training and retraining, including the granting of tax relief for this purpose? (Sections 13.1-2 and 14.2);

- Should the federal government consider matching retraining funds expended by industry? (Section 11.1);

- How can amendments to federal awards be hastened to permit people of nineteen years of age or over to enter into an indenture of apprenticeship and what should be the award rate for adult apprentices? (Section 5.3).

PART B. ANALYSIS

3. INTRODUCTION

3.1 This part of the report first describes how the investigation was conducted. The results of the investigation are then covered and commented upon under three main headings: training structures (in TAFE and in industry); an overview of industrial training; and an overview of TAFE training. Lastly the more relevant overseas experiences are described. The project's aims are:

- to summarise what mechanisms and structures at every level are presently used by TAFE and industry to liaise with each other;
- to evaluate these mechanisms and structures (including why they are used) and, if appropriate;
- to suggest possible alternative or additional mechanisms and structures for liaising on course development and implementation.

3.2 Every state in Australia was covered by the investigation. Because of the very frank comments made, and willingness to speak openly about problems, it has not been possible to identify individually any of those interviewed or the source of most of the written submissions. (See Part E, Note 4 for a numerical breakdown.) In addition to the Australian interviews, interviews were conducted at the UK Manpower Services Commission (MSC) and Further Education Unit (FEU). (See Part E, Note 1)

3.3 The TAFE National Centre's glossary of terms used in TAFE (Part E, Note 2) defines training as 'the instructional process aimed at the acquisition of defined skills relating to a particular function or activity'? Vocational education is defined as 'educational activities designed to develop a person's capability for some prospective career or occupation'. These are typical of such definitions and imply that training is narrower and more specific than education and that education employs a variety of activities to achieve a larger range of objectives than does training. This report does not agree with these distinctions and advocates that their use should be interpreted with some caution. Indeed, part of the industry/TAFE tension which exists derives from the

use of these two terms. A further term which has caused concern is 'industry'. Just what is meant by the term? Who is competent to speak for industry? In general, the opinions of a sample of those concerned with course development and implementation have been sought, such as heads of training divisions.

3.4 The use of the terms 'training' and 'vocational education' does imply that what goes on in a college is regarded as being different to that which goes on in industry. TAFE lecturers (or educators) are thought to provide a broad background to a vocational area whereas industrial trainers are thought to be highly job (or even machine) specific. Such a narrow view of industrial training (which does still frequently exist) is strongly questioned in this report. Such questioning has powerful implications for course design and implementation. No longer is it sufficient for a person to be narrowly trained. Such training leads to quick redundancy even within the one organisation. One of the major thrusts of this report is to question the narrowness of so much industrial training. Such questioning is now common within some unions and is frequently found throughout TAFE. Consequently, it is especially encouraging, for example, to see developments in the metal industry where a total educational strategy is being worked out.

3.5 In one sense, it is a pity that this important project was undertaken by an organisation which has close links with TAFE, because the report will be suspected of showing bias. All that can be said in defence is that objectivity did prevail. (Part E, Note 1) Further, because the chief researcher knew far more about TAFE than about industry or about government departments, he had detailed knowledge of some weaknesses in TAFE at the start of the project which he did not have of industry. Finally, three other researchers (Part E, Notes 3(b), (c) and (f)) had no direct link with TAFE.

4. THE INVESTIGATION

4.1 The total investigation took nine months (part-time) to complete. Three separate investigations into the use of joint facilities were conducted covering five states: one in South Australia; one in Victoria, New South Wales and Queensland; and one in Western Australia. Separate reports covering each of those investigations were produced. A further study into training models used in industry was undertaken and an investigation into ways of integrating on-the-job and off-the-job training within traineeships was also completed during this project.

(Part E, Note 3) A total of five written reports, a sound cassette and a summary report were produced as components of this project; and a sixth written report (on traineeships) was also prepared.

4.2 This document was produced by drawing on the research mentioned in Section 4.1, by reading the recent literature on the present state of, and future prospects for, Australian industry; by collecting published information on present approaches to TAFE/industry liaison; and by interviewing a selection of those representatives of industry, TAFE and training who were known to be especially knowledgable of present training approaches and the liaison occurring between TAFE and industry. The people interviewed were drawn from the trade union movement; TAFE colleges and administration; trainer training organisations; national and state industry training committees; state training authorities; and industry and government departments. Interviews were also conducted overseas and relevant overseas reports (such as those published by the OECD and the MSC) were read. Written submissions were also provided by National Industry Training Committees (NITCs) and TAFE authorities. (Part E, Note 4) In all 43 interviews were conducted using standard interviewing techniques.

4.3 There was a remarkable degree of agreement on most major matters by those who were interviewed. This was surprising, because the public statements made by some representatives from the various interest groups are often at variance. Perhaps this is an indication of the differences between their public (frequently 'political') and private stances?

4.4 The focus of this document is on course development and implementation. However, all important variables within TAFE have some influence on courses (the provision of courses is, after all, the reason for TAFE's existence). Therefore the coverage in the report is necessarily broad, even though the discussion repeatedly focuses on courses. Whenever TAFE/industry liaison is mentioned, it is always with course preparation and delivery in mind.

5. TRAINING STRUCTURES

5.1 TAFE authorities in Australia are structured in different ways with responsibilities to different Ministers as indicated in the table below. It could be argued that the most 'autonomous' TAFE authorities are in South Australia and Queensland which have their own chief executives and Ministers responsible for further education (with a

separate Minister responsible for schools) and the most 'integrated' are in Western Australia and Tasmania. However, there is no evidence to suggest that one structure is better than another for promoting TAFE/industry liaison. The different systems also have different administrative structures for developing curriculum, ranging from the highly centralised approach in Queensland through to the highly decentralised, college-based, approach in Victoria. New South Wales with its unique 'Schools' which provide horizontal structure and which span colleges, sits between the two extreme approaches. There is also no evidence to suggest that any one structure is more efficient or effective than any other structure in developing courses. Examples of 'fast track curricula' and extremely lengthy course developments can be provided by each system and each administration. (Section 7.1 and 7.2 discuss the different approaches to course development.) (Part E, Note 5) Of course, it is important not to equate 'faster' with 'better', a trap some critics of TAFE curriculum development have fallen into.

STATE/TERRITORY	ADMINISTRATIVE STRUCTURE
ACT	Office of ACT
NT	part of Education Department
QLD	part of Department of Employment, Training and Industrial Relations
NSW	separate Department of TAFE
VIC	part of State Training Authority
TAS	separate division within the Education Department
SA	separate Department of TAFE with a separate minister
WA	part of the Ministry of Education

5.2 State Industrial and Commercial Training Commissions (ICTCs) are statutory authorities which administer the legislation governing vocational training within each state. The Commissions' functions are to:

- evaluate training already being provided;
- determine training programmes for trades and other vocations;
- develop trainee schemes and pre-vocational courses;

- examine the training needs of special groups;
- co-ordinate training resources;
- organise and supervise contracts of training;
- promote training programmes;
- advise on training matters.

The state ICTCs generally work closely with TAFE authorities and a major task of state ICTCs is to administer the apprenticeship system and traineeship scheme.

5.3 No person in any state, by reason of age, can, under training legislation, be disqualified from entering into an indenture of apprenticeship. However, a number of federal awards do prevent the entry into apprenticeships of people who are usually nineteen years of age or over. Such awards apply in many areas of industry. It is generally recognised that this is an anachronism which should be scrapped as soon as possible thus enabling older people to train for different employment, and changes are starting to take place. With a few exceptions every apprentice must undertake a required course of instruction, most often during the first three years of their indenture term, at a TAFE college. There are several ways in which attendance may be required including day release where the apprentice is required to attend a college one day a week and block release where the apprentice is required to attend on several consecutive days (most commonly in blocks of two weeks). The apprenticeship area is one where there should be especially good TAFE/industry liaison in course implementation. However, investigation did not show this. Indeed, some of those responsible for the industrial component rarely (if ever) met with their college counterparts, a situation which must be deplored.

5.4 There has been a real attempt by TAFE to update apprenticeship courses in the light of technological change. This has partly been done in TAFE through the Curriculum Projects Steering Group (CPSG) and through the development of National Core Curricula (NCC). Advisory Committees of State and Territory ICTC's have also been influenced in making changes. Nevertheless, apprenticeships are generally tied to traditional occupational structures and not to those new across-boundary jobs which are emerging as a consequence of technological change. This must be a matter for considerable concern, an opinion shared in some of the interviews.

5.5 The national Industry Training Committees (ITCs) are funded by the commonwealth government through the Department of Employment, Education and Training. There are 110 national and state/territory level ITCs covering 18 major industries. The objectives of an ITC are to:

- assess current and future workforce training needs;
- take appropriate action to ensure training needs are met;
- promote training and the ITC, its aims and activities, to industry;
- liaise with appropriate training organisations, for example, TAFE, to advise on and co-ordinate training resources;
- provide advice on industry training matters to state/territory and commonwealth governments and industry itself.

5.6 An ITC achieves these objectives by:

- promoting and developing systematic training in its industry;
- providing policy advice to the Minister for, and the Department of, Employment, Education and Training on labour force and training matters affecting its industry.

The ITC's functions involve:

- researching, and responding to, industry labour force needs;
- liaising with commonwealth and state/territory labour, education and professional bodies;
- focusing the attention of industry on training;
- promoting systematic training;
- advising on labour force policies and training generally.

It appears that the success of the ITCs has varied. Some have had little impact on their industries and seem to spend most of their funds on process rather than product; a few (such as plastics, printing, automotive and road transport) have had a greater influence. The successful

ITCs have had a significant role in the provision of retraining. However, only a few national ITCs have close links with TAFE (Part E, Note 6); there are many examples of links at the state level, the most common being cross-membership of committees. There was in fact one example, at the national level, where a deliberate decision had been taken to exclude TAFE from the work of the ITC.

5.7 In addition to TAFE, state ITCs and national ITCs, many private training organisations exist (such as the Australian Institute of Management) and limited adult training and some retraining are carried out by industry and commerce themselves. There are also numerous private business colleges, modelling agencies, hairdressing colleges, etc., and even a private (Japanese) technical college in Sydney. (Part E, Note 7)

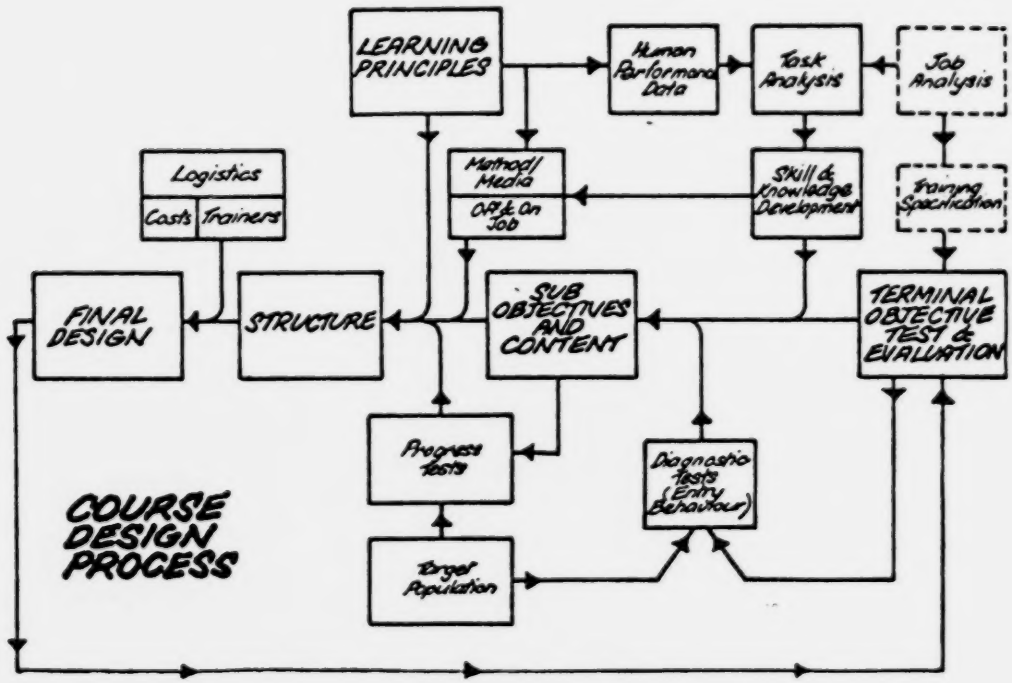
5.8 The training of the trainers is undertaken formally by TAFE, where most states insist that lectures are trained for two years at a college of advanced education (CAE). Some concern was expressed at the quality of some of this training. Industrial trainers sometimes complete a CAE diploma or associate diploma. Courses (at a very basic level) are provided by federally-funded trainer training organisations and these are discussed in the next section.

6. INDUSTRY TRAINING

6.1 Private sector expenditure on training in Australia is significantly less than expenditure in the USA, Japan and West Germany. Both government and industry rhetoric on the need for training and retraining is strong but, unfortunately, actions do not always match words especially in the private sector. Although exceptions can be found, the general picture revealed is one of commitment by industry to initial training that is barely minimal, and to retraining, a commitment which is abysmal. The general industry attitude is that formal training and retraining are TAFE's responsibility. The small commitment by the commonwealth government to state trainer training must also be questioned. One wonders if much of the criticism of TAFE in recent years by some industry representatives and by some government departments has been done in order to deflect attention from deficiencies outside TAFE. No criticism of individual industrial trainers or of individual trainer trainers is intended here, many of whom are doing a huge job with minimal resources.

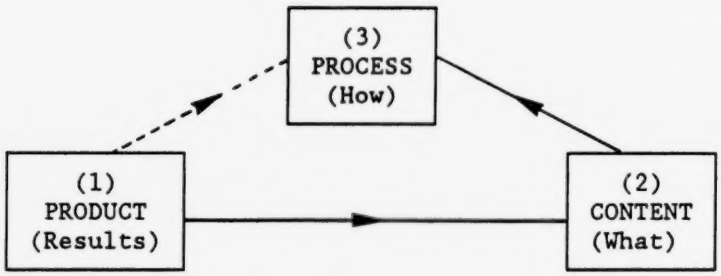
6.2 The total amount spent in 1986-87 on commonwealth funded trainer training organisations in each State was $1.3 million. The Department of Employment, Education and and Training has also decided to take a close look at trainer training and this can only be applauded, because resources devoted to national trainer training are minimal. One typical example of the tiny resources devoted to trainer training follows. One state office employs two professional staff (the trainer-trainer and his assistant) and two support staff. The annual budget is $160 000, of which $60 000 is actually earned by the organisation. Rent consumes $60 000, leaving $100 000 per year for four salaries and <u>all</u> recurrent costs. This organisation is held in extremely high regard throughout the state, but could do far more with a realistic budget, or by amalgamating itself with the TAFE authority or a CAE, so that its trainer training could draw on the professional and physical resources of a large, sympathetic organisation. Enabling additional earnings to be retained by the trainer training organisations (presently they are taken by consolidated revenue) would also encourage the organisation to be more entrepreneurial. They might even become self- sufficient.

6.3 The approach used in industry for training is (almost) exclusively the 'systems' approach based on measurable objectives, which should be derived from a training needs analysis. The process is summarised below. (The diagram was provided by a state trainer training service.)



There are two main weaknesses in such an approach (quite apart from the well known 'behavioural objectives' debate). First, it ignores important human characteristics such as motivation; and, second, it tends to accept industrial processes as they are, there being no place for the imaginative leap or the application of entrepreneurial skills. This is because the model is tightly self-contained and circular in its approach, analysing what presently exists, not what future demand is likely to be. This curriculum structure is used because it is safe, well tested and can be broken down into discrete steps. Using this approach, the time to develop a typical industry-based training course of 20-30 hours duration, by an industrial trainer who is competent and knowledgeable of the training area, would be 6-8 weeks. During that period the trainer would generally obtain two approvals from his/her managing director, devote three weeks actually on-the-job and spend about $5000 in identifying the needs, analysing the tasks, developing objectives and writing specifications. Other training models are described and discussed in a Centre report complementary to this one. (Part E, Note 8) That report points out that most trainers do not use any model and that industrial training is badly organised, badly structured and based mainly on ad hoc decisions.

6.4 It is interesting to compare the model shown in the preceding section with the naive approach adopted by the Manpower Services Commission (MSC) in the UK. The MSC states that it is not interested in process; process is entirely the deliverer's area of concern. Product (in the MSC) is all that matters, and that is reflected in this simple development model which starts with desired 'results', then determines 'what', and only finally considers 'how':



There are grave weaknesses in such a naive approach, which largely explains why the Open Tech programme had no effect on teaching in further education colleges. There are strong indications that the delivery of training process

is going to assume even greater importance within Australia (see Section 11.4) and so the MSC approach must be condemned.

6.5 Rightly or wrongly, industrial trainers make comparisons with TAFE's approach to course planning which frequently involves a team of people and can take over one year to complete. An extreme example was given by one TAFE authority where a course took four years to reach the approval stage, at which time it was no longer required because much of it was out-of-date. Indeed, the biggest single criticism made by industry of TAFE course development is the length of time the process sometimes takes. Some TAFE authorities now permit colleges to develop and implement their own short courses, thus reducing the time, but most longer courses still require formal accreditation using a committee-based model derived from colleges of advanced education.

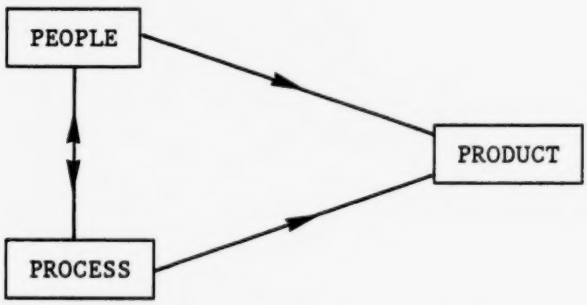
6.6 Even major industrial firms, with a good public image for training, frequently devote minimal resources to training. For example, one major multi-national organisation with a large Australian presence employs one person to handle the whole of its training. What is needed in industry is a minimum acceptable ratio of trainers to employees (including managers) so that training programmes can be properly developed and implemented. There is also a dearth of training needs analysis, which is a minimal basic requirement if suitable training programmes are to be developed.

6.7 It is not uncommon to find that no syllabuses or training programmes exist in industry (even for apprenticeships). To use the words of one trainer, 'scraps of paper in a filing cabinet' comprise the programme outline. Newly employed trainers have to develop their own programmes from these scraps of paper, from discussions with colleagues and from their own experiences. Such an approach must be questioned. Certainly, it would not be tolerated in most TAFE colleges. (In passing, it should be mentioned that the organisation which could produce only 'scraps of paper' sent a newly-written training manual to the Centre about six months after the interview!)

6.8 A stronger partnership between TAFE and industry would help the production of good programme outlines and training manuals, as well as useful student materials; and valid and reliable means of assessment. Industry is urged to recognise TAFE's expertise in programme development and to use that expertise. This report goes further: it raises the issue of whether the management responsibility for publicly accredited training should increasingly

belong to TAFE. Clearly, there are financial implications arising from such a consideration. (Publicly accredited courses include apprenticeships, traineeships and associate diplomas.) Recent portfolio restructuring in some states could help to alleviate the problem.

6.9 A common attitude in industry is that schools and TAFE (the 'government') should be solely responsible for initial training and retraining. This attitude even extends in some industries to highly specific skills. Sometimes workers are treated like redundant machines, to be scrapped when no longer useful. New people are hired (even from overseas) when new skills are required. Thus the 'people' component in the simple model below is frequently ignored.



It is obvious that industry must make a profit. That profit is often made using a narrow range of skills to produce highly specific products. The product (and profitability) must come first. However, the product (as well as people) is frequently suffering because of the neglect of training and retraining. There is a link between the quality of the product, the efficiency of the process and the productivity of the people; and quality efficiency and productivity all suffer if the people component is ignored. There is some discussion of this in another report. (Part E, Note 3(d))

6.10 The National Training Council commissioned a research project (Part E, Note 9) into private enterprise investment in training which showed that to neglect training was far more costly (in terms of productivity loss) than to spend money on training. The natural tendency to cut back on training when times are tough costs industry more money, even in the short-term, than to continue with training. This message has yet to reach much of Australian industry.

6.11 Industrial training when it does occur is usually narrow. Two examples will suffice. One state bank was criticised

by its trainees because in its training programme no other bank was mentioned, and the impression given was that no other financial institutions existed in Australia apart from banks. One major factory which was visited had been described as a model training establishment by the relevant ITC. The training offered was basic, brief and machine specific by one operator to a new employee. The operator had received no guidance on how to train. What is needed in both of these examples has been described by the OECD:

> ... it may well be that future social and economic development will increasingly depend on members of the labour force possessing both technical skills and a highly developed sense of judgement. Yet it seems that the ability of vocational education and training to develop the qualities of independent, critical thinking, usually associated with general education, has yet to be recognised and fully utilized. (Part E, Note 4 (b))

6.12 A common (but frequently ill-informed) criticism of TAFE by industry is that many TAFE lecturers rarely,if ever, set foot in industry. On the other hand, little seems to be done by industry to encourage TAFE lecturers to meet informally with industry employees. However, one thing is clear: there is very little formal or semi-formal TAFE/industry liaison at the individual lecturer or industrial trainer levels. (There are numerous informal links, however.) This has important course ramifications, because it became clear during the investigation that in many instances there is almost no relationship between on-the-job and off-the-job training, even for apprenticeships. Both continue independently. Sometimes this is not important; but sometimes it can be a frustrating waste of time. One attempt at integration which used to occur (before funding restrictions) was spoken of enthusiastically in one state, this was the employment of industry liaison officers by TAFE authorities. The development of log books and competency based assessment processes are also occurring in some instances. There are some good examples of integrated on and off-the-job training especially in traineeships and many of these are in non-metropolitan locations where TAFE/industry links extend beyond formal training to social and personal links. The critical elements in the successful co-ordination of on and off-the-job training in traineeships have been investigated by another project. (Part E, Note 10)

7. TAFE TRAINING

7.1 A description of the different types of TAFE courses and their levels is not provided in this report. Such information is commonly available. This section deals with how TAFE develops and implements vocational courses, and considers some of the comments made about these courses. In general there are three main stages in the course development process:

stage 1 : which gives approvals in principle

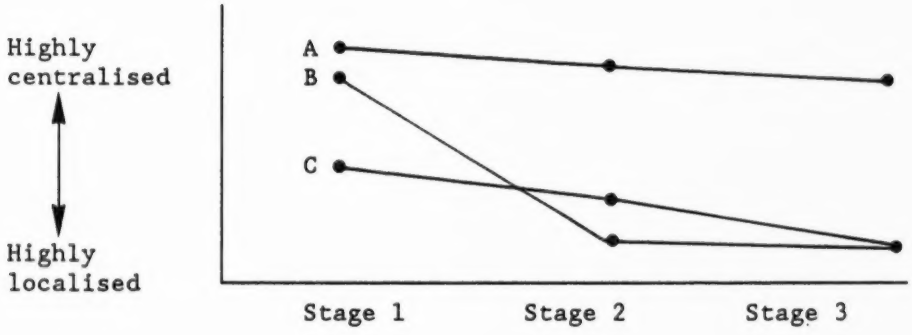
stage 2 : which reviews submissions (syllabus documents)

stage 3 : which develops courses

Later stages deal with course accreditation.

The development process usually starts because someone in industry or someone in TAFE has identified needs. In general, industry is usually well represented at stages 2 and 3 where industry members of committees are frequently drawn from the industry training network. In addition, college councils always include members of the local community (which include employers). Sometimes, stage 1 is outside TAFE (for example, it may occur in a state or territory tertiary course accreditation committee) and sometimes stage 3 involves a number of colleges (especially in NSW where the school has responsibility) or is undertaken centrally (at one extreme) or by individual colleges (at the other extreme). There is some evidence that industry finds these differences confusing, preferring to deal with one local college.

7.2 Some of the possible approaches to course development are shown below. All are real examples.



Example A shows a high degree of centralisation for the whole process and enables a quick response but with limited local commitment. Example B shows a highly diffuse system with tight central control over approval and accreditations. This has sometimes led to strongly adverse college reaction. Example C shows moderate central control with college involvement at each stage. The reasons for these different approaches follow the administrative philosophy of the state/territory, which ranges from tight centralist to diffuse and localised administration.

7.3 A common criticism within and without TAFE is that TAFE is now swamped by curriculum committees. It is claimed that an accredited course cannot be developed unless (for example) an industry-needs committee, a curriculum committee, an equipment committee and an implementation committee have all spent up to two to three years doing their work. Then follows the accreditation procedure with its committees, some of which meet infrequently. There is strong evidence from the detailed documentation provided to suggest that the number of state committees having some involvement in TAFE curriculum development and accreditation should be substantially reduced, thus removing excessive delays and reducing administrative costs.

7.4 Tremendous responsibilities are assigned to TAFE. For example the Review of TAFE funding (Commonwealth Tertiary Education Commission, 1986) in its discussions of the future labour markets suggested that TAFE should bear the following responsibilities, to:

- respond to labour market circumstances;
- be pro-active and representative to changing skill requirements;
- provide retraining;
- provide a broad-based vocational preparation with an emphasis on adaptive skills;
- help industry to be self-sufficient in skilled labour;
- help implement government economic, social and labour policies;
- consult and co-operate with industry;
- strengthen school/TAFE links.

Each one of these is a major responsibility to be imposed on a system which in some instances has not even been able to meet all of the enrolment demands placed upon it.

7.5 The pressures on TAFE are frequently not recognised. The anecdote describing a local problem can quickly become a generalisation made of the whole sector. Numerous examples can be given of this but one example will suffice. A major government body which produced a short (2 1/2 pages) paper for national distribution on education and training had six major factual errors in it regarding TAFE, including the statement that there was little effective input by industry into TAFE courses, which is one criticism which certainly cannot be made of TAFE! When questioned, the government body was able to give one minor example from only one state to support its national criticism. (No doubt the astute reader will have noticed that an anecdote has been used to dismiss anecdotes!)

7.6 One criticism made by a senior public servant was that TAFE in his state had failed to respond adequately to the political needs of government. Examples were given of inadequate responses to particular training needs, thus causing embarrassment to the minister concerned. This embarrassment included strikes by tradespeople because their apprentices could not gain access to a TAFE college, and also the inability to develop a large number of new traineeships. It seems likely that this state confused the need for central policy making with the encouragement of regional activity, incorrectly leaving major policy-making to the colleges.

7.7 A counter argument regarding TAFE response to industry is frequently put forward by TAFE : that industry often disagrees within itself on what its needs are (Part E, Note 11); that it can be difficult to find someone to speak for industry; and government policies (especially federal government policies) are often aimed at achieving short-term political goals rather than substantial educational aims. Additionally, employment policies can be badly managed by unco-operative bureaucrats. Examples include the overnight halving of PEP funds, the shift of TAFE funding from CTEC to the DEIR (as it was then) with no indication of how the money was to be used, and problems accompanying the introduction of traineeships. Examples like these tend to create huge difficulties in developing curricula, quite apart from the effects on morale.

7.8 The biggest danger presently facing TAFE courses is the (self) imposed bureaucracy of the course accreditation procedures, especially if these procedures are outside the TAFE system. TAFE has shown that it can develop courses

quickly ('fast track' curriculum development is the jargon) and can implement these courses; but if an accreditation procedure similar to that presently inflicted on some CAEs is imposed upon TAFE, then unnecessary delays will occur. The assumption in some quarters has been that because TAFE courses are now aligned with those in higher education then the time-consuming, complex and 'wordy' procedures employed in many CAEs must also be followed by TAFE. The assumption has no validity and is leading to unnecessary delays in implementing courses in some states. Much of the documentation required by course accrediting agencies is of no use to those responsible for mounting courses and much of the time spent producing lengthy accreditation documents needs to be exposed for what it is; wasted time which could and should be spent on more profitable activity. Such a statement is not intended to ignore the need for accountability which requires evaluation, validation and performance indicators. What is being condemned is the time-wasting delays caused by numerous committees pontificating on mountains of paper. (Part E, Note 12)

7.9 Although it is the subject of another Centre report, the Curriculum Project Steering Group (CPSG) must be mentioned here because it is an important part of TAFE curriculum development. CPSG is a sub-committee of the Conference of TAFE Directors which has oversight of the development of national curriculum projects, including national core curriculum (NCC). The idea of NCC is generally applauded in industry and there are good examples of close industry involvement from the start through to the completion of an NCC. The National Timber ITC claimed that the development of the NCC in timber technology had led to a particularly productive TAFE/industry partnership. However, one thing does seem to puzzle industry: why is an NCC sometimes not a nationally agreed and implemented core curriculum? One national industry training committee commented on the inability of TAFE to take binding curriculum decisions at a national level. Many of the differences in courses between states are claimed to be trivial by industry (although some are not, and for good reason, as with real estate courses, for example). There does seem to be a need however to ensure that core curricula are, in fact, as far as possible, common, thus reducing the time needed to develop material for implementation. Indeed, if materials development were part of NCC development, commonly implemented curricula might more readily be introduced.

7.10 One approach to developing a national curriculum which cannot be defended (and which is not supported by the CPSG) is to use the matching exercise, whereby common

elements of existing curricula are combined to produce a common curriculum. Such an approach is not forward looking and can lead to the worst possible course. Lack of clear specifications for curriculum task forces cannot be defended either, because this has, in a few instances, led to curricula becoming diffuse and to lengthy developmental processes (five years in one example). Recent research (Part E, Note 13) has discussed alternative approaches to national (common core) curriculum development. These are the task force approach, which has been the most widely used; the co-operative project method (where two or more, but not all, TAFE authorities participate); the conference/ workshop approach; the delegated approach (to one TAFE authority); and the consultant approach (where the work is done by a single project officer). The last four approaches are all considered to be much cheaper than the first. All five approaches are concerned with management rather than curriculum development techniques. The various techniques have been fully described in recent Centre publications. (Part E, Note 14) A note of caution is merited here. There are those in industry and government who believe that curriculum development involves merely producing a curriculum document. That is the easy part and takes the least amount of time. Attitude changes, in-service education, and retraining of teachers take much longer and are really the essential components of curriculum development and implementation.

7.11 As well as course development and accreditation, the whole issue of articulation is of considerable importance. There are two aspects which are linked. The first concerns the transition from TAFE to higher education courses (with credit being given to TAFE studies) and the second concerns the linking of all courses in a particular trade so that it is possible to study at any position on a continuum, ranging from a certificate through to a degree. Career structure and wage awards are linked to academic attainment. In such a continuum no course is isolated and no qualification is an end in itself. Such an approach is becoming increasingly important to industry.

8. OVERSEAS EXPERIENCES

8.1 Overseas experiences considered in this report cover the USA, the UK and certain other OECD countries. Material from the USA, visits to the MSC and FEU in the UK, and perusal of recent OECD reports provided most of the information. Twelve different United Kingdom approaches to strengthening education/industry links were examined.

The twelve approaches included PICKUP (Professional, Industrial and Commercial Updating), LENS (Local Employer Networks) and the New Job Training Scheme. It is suggested that these different approaches be classified under four headings:

employer led approaches;
joint approaches;
college led approaches;
government control or pressure.

On-the-job training is not a common feature of UK college courses, whereas it is common in Australia. Also, the education/industry dichotomy is more marked in the UK. Nevertheless, the use of funds to help employers form local consulting groups or networks, and to form college/employer links, is a useful idea and one which could be pursued experimentally in this country. The ACTU-Lend Lease Foundation is one example of how employer groups can be formed. Another example is the UK's Local Collaborative Projects (LCPs) which are formed by groups of local organisation representatives who want to develop local training solutions. An LCP may comprise employers, training providers (including colleges) and umbrella organisations (such as trade or professional associations). The partnership must have three key elements to it:

- more than one employer must be involved;
- several local training organisations should be involved;
- there must be firm plans for continuing after the initial funding has stopped.

The third of these has not been rigorously enforced and so the failure rate has been high. A major education/industry co-operation project at Ohio State University (completed in 1981) claimed that there are at least eleven guidelines for successful co-operation:

- good, clear communication between key people in industry and education;
- excellence in teaching;
- institutional flexibility to meet industry's needs;
- high quality of programmes;
- good, active advisory committees;

- quick response time by education to industry's needs;
- recognition of mutual need;
- administrator and teacher support;
- careful and thorough planning;
- clearly written agreement or contract;
- continuous evaluation.

Although prepared for higher education (Part E, Note 15) the list of pre-requisites for education/industry liaison produced by the OECD can be adapted to TAFE. The pre-requisites for success are claimed to be:

- the college must be known for its excellence and interest in the area(s) of interest to industry;
- industry must be clear in its requirements;
- college staff must be receptive to industrial needs;
- a willingness to be flexible by both the college and industry is required;
- college staff retraining should be considered a possibility;
- there must be dynamic individuals involved in planning and development and they must be encouraged;
- industry must welcome outside advice.

One approach to TAFE/industry liaison at the regional level would be to form small, local liaison groups which would require very little funding (say $5 000 per group per year) and yet would provide the impetus for liaison to occur. The money could be used to give part-time release to a TAFE lecturer or member of industry, provide some administration support, or pay for a consultancy on training needs or course development. The groups should be industry led.

8.2 Early information on technological changes is of importance to course planners. The New South Wales Department of TAFE has an interesting approach whereby it regularly inspects patent information from overseas (including Japan) to get ideas for possible new courses and to make changes to existing courses. Presently in Australia there is no national approach to monitoring technological change and this is a grave deficiency which

should be remedied. The TAFE National Centre was designated by the (then) Department of Employment and Industrial Relations, as the Australian focal point for the Asian and Pacific Skill Development Information Network (APSDIN), a regional branch of the International Labour Office (ILO). At this stage the extent of involvement is in the sharing of information in vocational education on a regional basis. Once the network is fully functional, the Clearinghouse will have access to the whole International Labour Office database (LABORDOC). The Centre has calculated that it can run this international section of the Clearinghouse for $30 000 per year. So far, this small amount of federal funding has not been given for what is (potentially) a powerful tool for course planners wanting to know about international developments. (This compares, for example, with the UK's spending of 5.6 million devoted to producing a training course data bank.) Such a tool would help us to learn from the experiences of other countries, especially our local competitors.

8.3 In the UK, the Manpower Services Commission (MSC) funded *Technology Monitor* (Part E, Note 16) does this job and it has followed trends in the introduction of different kinds of new technology in the UK. A summary of the more important recent findings follows. These have been gleaned from the *Monitor*:

- Numerical controlled tools continue to be a major focus of technological change. Examples include automated equipment; computing skills; upgrading existing equipment and developing cheaper equipment; introduction of new applications; and extending computer controlled techniques to a wider range of engineering and related equipment.

- Robotics application and development are widespread and a tactile sensing system has been developed. Robotics are especially useful in 'hostile' environments.

- Although CIM is now widely quoted (and has become a fashionable term) there are very few examples of true CIM. 3D CAD modelling facilities are now readily available.

- Flexible manufacturing and process control systems (for example, automated production) are being used to reduce staffing levels and are being considered for management applications.

- Process sensors can take a large number of complex measurements and present them in such a form that the need for skilled interpretation is reduced.

Computer controllers can automate decisions. Process sensors and controllers have consequences for the skills required of technicians, engineers and line managers.

- Development in telecommunications include the availability of an executive work-station (incorporating a telephone, keyboard, display screen and microprocessor), electronic mail systems, and company hardware networking.

- Developments in reprographics are leading to desktop publishing (on the one hand) and to sophisticated automated, integrated presses (on the other hand).

- Data processing equipment developments include major developments in both hardware and software, management in function systems and developments in the retailing and banking industries.

- Laser and optical devices are continuing to be widely applied. Their functions include fault detection and cutting.

- Transport systems include novel devices such as an air flotation transporter, remote controlled automatic vehicles and automated materials distribution.

- New materials developments. (These are covered in Section 10.4 of this report and have been given as examples to illustrate the areas over which pro-active curriculum planning groups could be formed by the CPSG, thus anticipating new curricula.)

Technological changes, such as these, have implications for capital works as well as for curriculum development. Equipment suppliers should be encouraged to locate hitech equipment in TAFE colleges (or skill centres associated with TAFE) so that it can be used by both lecturers and local industry. There are examples of where this is being successfully done (for example, Regency College, South Australia).

8.4 'Flexible and adaptable' work force is a catchcry around the world. 'Transferrable skills', 'learning to learn' and 'general problem solving' are said to be what matters in the workforce. The American psychologist Jerome Bruner claims that 'knowing is a process, not a product'. The question is this: how can training (or even vocational education) which, of necessity must be concrete rather than abstract, bring about such worthy aims, so that knowledge and skills do not become redundant after shorter

and shorter periods? Here then is the dilemma: industry is increasingly needing broadly trained employees possessing transferable skills, but its training approach is narrowly systems-based and highly job-specific. The challenge is to change narrow trade training into transferable skill education, to change narrow business training into courses which promote problem solving and entrepreneurial skills, and technicians courses which are not constricted by rigid, vertical boundaries. In addition, the continuing education needs for all employees, at all levels, throughout their working life must become the norm. There is still an attitude that education is a once-for-all experience although, fortunately, the attitude is changing.

8.5 Special problems face small businesses which have no training provision. One approach to industry/education co-operation which has been used successfully in the USA has been to encourage small businesses to start and to develop over a few years on a college site, usually before moving out into their own accommodation. 'Technology parks' exist in Australia, but their links are always with higher education. Similar arrangements could be developed with TAFE colleges so that the college is able to give support, especially in the developmental stages of a company, and so that the company can provide practical experience to lecturers. It is suggested that such an approach could be introduced on a trial basis in a small number of colleges.

PART C. A WAY AHEAD

9. INTRODUCTION

9.1 The picture presented so far is of TAFE being the major provider of vocational education; and of industry having minimal training resources and largely neglecting retraining and continuing education needs. In this part of the report suggestions are made on ways in which the TAFE/industry partnerships can be strengthened, thus leading to more effective course development and implementation. Suggestions are also given in other reports, but especially in the parallel study into shared resources in Victoria, New South Wales and Queensland. (Part E, Note 3(c))

9.2 This report argues that TAFE should continue to be the major provider of vocational education courses. Indeed, it argues that, because of the (usually) inadequate training facilities and small number of trainers in industry, that where it is not able to do the job adequately industry should consider commissioning TAFE to manage all of its part of publicly accredited training (apprenticeships, traineeships and associate diplomas). This would be in addition to the present activities within TAFE. TAFE has the curriculum planning and implementation expertise; industry should buy this expertise and make its facilities available to TAFE, or come to some arrangement whereby TAFE can have access to expensive equipment for training purposes. This is already happening to some degree in every state and should be developed much further.

10. THE NEED FOR PARTNERSHIP

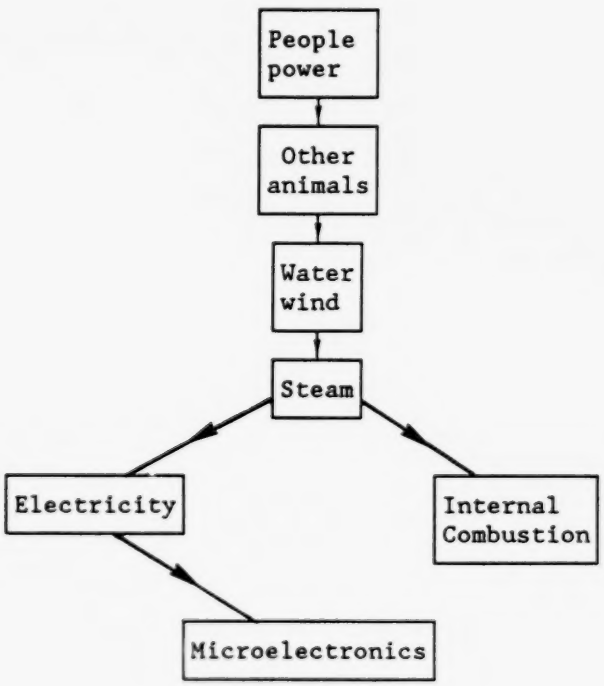
10.1 As the Economist pointed out in its 'Factory of the Future' supplement (30 May 1987), the factory is being reinvented from scratch. Long, narrow production lines with people crawling all over them are out. All-purpose, 'make anything' machines huddled in cells run by computers are in. The new jargon terms are computer integrated manufacturing (CIM), flexible machinery centre (FMC), flexible manufacturing system (FMS) and computerised numerical control (CNC) tools. Both the technology used and the way production is organised are continually changing. The Economist gave the following example from Toyota. Quick release fasteners now enable dies on 1000

tonne presses to be changed in ten minutes (in one dramatic example, a forge for making bolts, the time taken to change dies was reduced from eight hours to less than one minute). Practically all of the parts for making a Toyota are now manufactured on the same day that the car is assembled and driven from the factory.

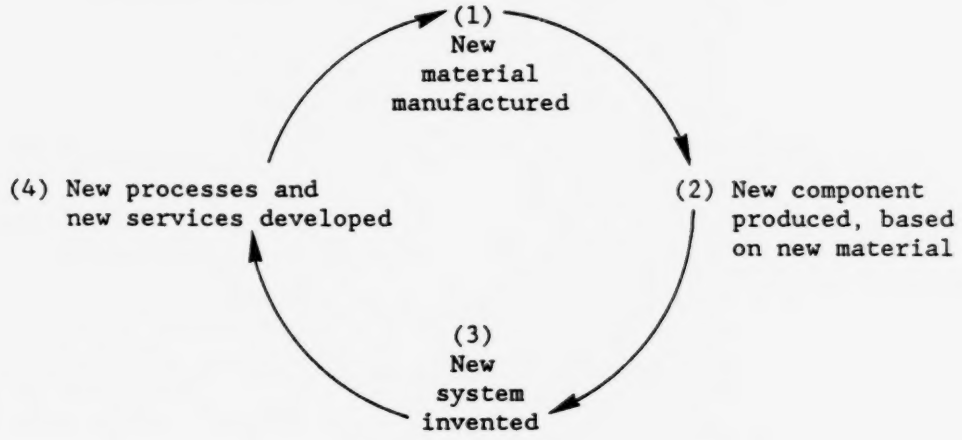
10.2 The machines are available to anyone in any Western country; it is the management which makes the difference. With changes like these taking place in competitive nations, it is of crucial importance that Australia's limited training resources be <u>combined</u> so that a unified, national approach to training be developed and implemented. This is essential for the following reasons:

(a) TAFE cannot afford to buy the expensive hi-tech equipment needed in many courses;
(b) industry frequently cannot afford to allow trainees to use some of its hi-tech equipment, or afford the time needed to release hi-tech equipment for training purposes;
(c) industry frequently does not have the capability to train adequately.

10.3 One thing is certain: continuing change is inevitable. Since Creation there have been six 'industrial revolutions' (we are living in the sixth: micro-electronics) and the rate of change is such that many people alive today will probably live through two more revolutions. The revolutions are shown below:



Each revolution produces its range of new materials. Part of TAFE's dilemma is this : how soon, during the development of a new process or the manufacturing of new materials, should it start to plan for training? The developmental cycle is shown below:


(1) New material manufactured
(2) New component produced, based on new material
(3) New system invented
(4) New processes and new services developed

Not only is the cycle concerned with product, but the training of people involved in the process (Section 6.9) is also important, as are the organisational structures. For example, the SA Department of TAFE has developed a new associate diploma course to cater for the $3.9 billion submarine project. The course is 'mechantronic engineering' (a term used in Japan) which combines components of mechanical, electrical and electronic engineering. How can TAFE continue to be pro-active in this sort of way as well as reactive? One TAFE authority did try to be pro-active in a major new area but was discouraged by industry because of the need for secrecy at that stage. The area under consideration was that of new materials use in a major manufacturing industry. Let us pursue this example further.

10.4 Perusal of the literature (for example, the *Technology Monitor*, Part E, Note 16) suggests that there are likely to be at least nine important developments in <u>materials manufacturing</u> and use. These are:

- high performance ceramics (as substitutes for metals);
- synthetic membranes (for new separation technology);
- strong engineering plastics;
- polymeric materials with high electrical conductivity;

- advanced alloys with controlled crystalline textures;
- composite materials (including carbon fibres within plastics and ceramic composites such as ceramic/metal);
- adhesives;
- coating processes;
- macro-defect-free (MDF) cement.

10.5 These developments are likely to influence -

<u>technicians</u>: they will require new knowledge of materials (including inspection and testing);

<u>craftspeople</u>: they will need to know about the maintenance of new materials (including welding and painting);

<u>operators</u>: they will need to know about new assembly techniques;

<u>warehouse procedures</u>: they will need to learn new storage procedures;

<u>designers</u>: they will need to know the characteristics of new material.

This clearly indicates that there are major vocational education course development implications, and materials development is only one example of an expanding area. Similar lists for other areas (for example, computing, biotechnology, business studies) could be drawn up. Only a close liaison between TAFE and industry can lead to the development of suitable courses, on time, so that a skilled workforce is available within Australia to handle these materials. Joint industry/TAFE working parties for each of the areas would assist in this. Such working parties could be formed from the CPSG and maintain a watching brief on industrial development. Further, a national approach (for each industry) to industry, labour market, occupational and training needs analysis would provide important information on current and likely future trends. To assist in this, the TAFE National Centre has developed the manual *How to conduct a workforce study*.

10.6 Separate investigations were conducted in Western Australia, South Australia, Victoria, New South Wales and Queensland to discover examples of good TAFE/industry liaison. Substantial reports (Part E, Note 3) cover these investigations and only some of the generalisations will

be given here. The reports largely consist of particular examples of TAFE/industry co-operation. The main generalisations arising from the South Australian study are:

- good co-operation largely depends upon particular people involved in particular industries/colleges wanting to co-operate;
- nevertheless, the 'atmosphere' is created by those in authority and so official policy should encourage co-operation: discouragement or silence can have an adverse effect;
- the main issues arising from the studies included management structures, staffing, financial considerations and accreditation (especially with regard to private training facilities), and research being undertaken in colleges.

The Victorian, New South Wales and Queensland study ends with the following:

> As long as industry remains an advisor to the system, so its commitment will be limited. As a stakeholder, industry will take the real interest that the future development of an effective vocational education system requires. (Part E, Note 3c)

11. INCREASING AND IMPROVING TRAINING

11.1 Two major suggestions are made concerning methods to increase and improve training. To increase the quantity of training, extra money will be required. One way to raise this money which has often been talked about in the past is by collecting a small amount from employers for each employee (a training levy). An example follows. The assumption is that there are 5.7 million full-time employed and 1.4 million part-time employed.

Employer contribution 1c/hour employed - $20.80/year

Employee contribution 1c/hour employed - $20.80/year

Matching contribution by Federal government 2 cents/hour employed - $41.60/year

The amount for the total Australian workforce - $532 million/year

It seems highly unlikely that such a scheme will be adopted in Australia for a wide variety of practical and political reasons. Therefore, an alternative approach would be for the federal government to match (dollar for dollar) industry expenditure on re-training and continuing education. The disbursement of this money could be through the industries concerned (where the organisation is large enough), through groups of industries, through the ITCs or through TAFE colleges. The present role of States and Territories as providers of vocational education funds must be mentioned here.

11.2 To improve the quality of training within industry and within TAFE it is suggested that the strengths of both groups be combined, thus removing their major weaknesses. The strength of TAFE lies in its people expertise: expertise in developing courses, teaching and assessing. Its weakness lies in some of the outdated, more expensive, equipment. The strength of industry lies in its ability to supply expensive equipment and a real work environment. Its weaknesses are in organising and presenting training programmes and in the quality of some of its equipment. TAFE could have managerial responsibility for <u>all</u> training (both on-the-job and off-the-job) for publicly accredited courses. The training in TAFE colleges should be <u>performance</u> based (not merely competency based) so that as far as practicable, students work on actual production items (not models) under the conditions which are prevalent on-the-job. As a simple example, if a job is normally done outdoors then the training should be done outdoors. To enlarge TAFE's responsibilities in this way will bring major changes. For example, some lecturing staff may be best located within industry instead of within a college; and some full-time workers might do part-time teaching in TAFE colleges. There will be many who will argue that this is not the way to go, that greater diversity is what is required so that both public and private institutions can offer both public and private (including fee paying) courses. Such an approach, it is claimed, would give greater 'flexibility'. However, if <u>quality</u> is required in a relatively small population such as Australia's, then this type of flexibility is a luxury, especially when the necessary training expertise is so small. Naturally, industry-conducted machine-specific training, private management courses, etc., would continue. What is being suggested in this paper covers publicly accredited courses such as associate diplomas, apprenticeships and traineeships. It is <u>not</u> being suggested that the on-the-job components should decrease (quite the reverse) but that course development, management responsibility and delivery should reside wherever the expertise is to be found so that a stronger TAFE/industry partnership is

developed. This, of course, would require appropriate funding or shifts in funding.

11.3 The Victorian approach to strengthening the partnerships between government, unions and industry is worth describing. This government is undertaking a comprehensive review and redevelopment of skills training on an industry-by-industry basis. Further measures are planned whereby TAFE staff will be placed in individual firms to assist with the development of training programmes. All of this is described in Victoria: the next decade published in April 1987, by the Victorian Government. The training reviews are being undertaken by substantially funded working parties (for example, the metal industrial working party has $1.1 million) with the intention to establish foundations. The working party tasks are:

- to develop an industry-wide system of broad-based skills training at all levels upon which skills upgrading can be based;
- to develop flexible industry training arrangements capable of responding to emerging skill needs and accommodating changing technologies;
- to promote new horizontal and vertical career structures through the development of related training arrangements across the industry, and through extension of the coverage of training to embrace intermediate skill levels.

The government intends that industry groups should eventually assume total responsibility for training in each industry. There are two main weaknesses in this approach. First, many of the structural complexities which seem to confound industry remain. Second, the assumption that all industry groups are capable of, and willing to, undertake the task has yet to be proved.

11.4 Regardless of the training model employed and regardless of who is responsible for what, the delivery of training is likely to become increasingly important. No longer is it useful to consider mounting a course unit solely in a college, or solely in a factory. Frequently a combination will be required, together with components undertaken in the home or at a skill centre. Open learning (Part E, Note 17) has become important in North America and the UK. Some insist that because TAFE has a strong tradition of external studies, the need for open learning is far less important in Australia. To believe this misses the point entirely. No one would dispute the high quality of TAFE external studies, but it is in most respects just as

'institutionally based' as a TAFE college is, and the approaches to off-campus studies have so far had little effect on campus-based teaching.

12. IMPROVING PEOPLE PARTNERSHIP

12.1 Partnership between people can and should take place at every level: system; college; school and department; individual lecturer. Sometimes, the administrative structures developed by governments have done little to strengthen partnership at the systems level. For example, some have said that the National Training Council actually created a rift between TAFE and industry; and there was considerable tension between some sections of the Department of Employment and Industrial Relations (DEIR) and some sections of the Department of Education. Changes to ministries might help to break down barriers, but barriers within ministries can be just as great as barriers around and between ministries. Success is also dependent on the competency and commitment of the people involved.

12.2 Already, there are many examples of informal and semi-formal links, and some formal links, between TAFE and industry. The pattern which emerges (not surprisingly) is that the types of link, and strength of links, vary from state to state and from industry to industry. Common examples of links are:

- between individuals;
- between schools/departments and industry;
- between colleges and industry;
- between systems.

Misunderstandings can arise, and barriers can be erected, if the responsibilities of groups and individuals are not clearly defined when relationships are being developed. These responsibilities include such areas as finance, administration, personnel and publicity/dissemination.

12.3 Links between individuals often take the form of lecturers having a close relationship with a particular local industry, sometimes running short courses for that industry (frequently within the TAFE college). A spokes-person for one major industry pointed out that once personal links are made in this way, liaison then becomes possible. The importance of the individual lecturer making personal contact with local industry cannot be

over-emphasised and ways of building this requirement into the conditions of service of lecturers should be explored. Obviously developing and maintaining such links takes time and this would need to be recognised in conditions of service. Another way of developing links between industry and individuals is through memberships of, and active participation in, professional associations. Some TAFE lecturers hold key positions in professional associations and meet their industrial colleagues at local and national meetings.

12.4 One way to promote links which is frequently talked about but rarely used is to release selected TAFE lecturers for regular and substantial periods to industry. Another Centre report (Part E, Note 18) discusses this and points out that there is an urgent need for continuing education programmes which both enable lecturers to update their technical/vocational knowledge and skills in their teaching areas, and provide ways in which lecturers can keep abreast with technological change. Over 90% of all colleges surveyed recognised these as severe or important problems. The report also pointed out that there is an urgent need to institute continuing education programmes which bring lecturers into close contact with industry/commerce. The general picture is that in most colleges such close contact (for continuing education purposes) does not exist. The report goes on to recommend that the commonwealth government give serious consideration to making special funds available to state/territory TAFE authorities so that full-time lecturers can be released to spend substantial periods, at regular intervals, in industry/commerce. Although TAFE authorities can already release staff for such a purpose, it is rarely done and even where grants especially for this are available (for example, in NSW) they are not fully used, indicating that the whole matter of lecturer release needs careful and detailed consideration.

12.5 Links between college schools/departments and representatives of industry include:

- industrial representatives sitting on course development committees. These representatives are frequently ITC members;
- college representatives sitting on state training committees;
- industrial training committee executive officers being located in colleges;
- members of industry lecturing (usually part-time) in colleges.

Where ITC's do not have TAFE representation on their committees they are urged to do so.

12.6 Links between colleges and industry include the development of skills centres within TAFE colleges. These are generally staffed by industry representatives, equipped by industry, but remain under the auspices of TAFE for curriculum development purposes. Another approach (for example, by the National Furniture ITC) has been to obtain a government grant to refurbish premises, to equip with industry money, and to staff with seconded TAFE lecturers who are paid by the National ITC. Skills centres (such as those in the plastics industry) have been extensively written about and will not be described here. The conditions of service of TAFE college principals should include a statement about their roles in developing links between their colleges and local industry. In the short term, it is these individual college links with individual industries that will be most effective in promoting TAFE/industry liaison. Where they do not exist, state administrative structures should be devised to encourage colleges to act in entrepreneurial ways to achieve these links.

12.7 Links between systems generally require government commitment. Recent changes in Victoria and Queensland and by the commonwealth government might strengthen TAFE/industry links. Only time will tell. Major employer organisations are taking increased interest in education and training and are vocal in their interest (see, for example, the Business Council of Australia's Education and Training Policy), as are government bodies (see, for example, policy statements by the Australian Manufacturing Council). As was pointed out in Section 5.1 no one structure is better than any other structure in promoting TAFE/industry liaison.

12.8 Sometimes, tripartite committees are used. However, one senior person interviewed claimed that the main weaknesses of tripartite committees are that they are usually dominated by bureaucrats, employers do not attend (they quickly tire of the lack of progress and use of jargon), and the major emphasis is on process rather than product. These problems can be overcome if industry chairs committees and government does not act as the secretariat. Certainly, government should be there, but to contract only; not to dominate proceedings.

12.9 Discussions in industry and in TAFE clearly showed the strong belief that a major need lies in the urgent retraining of Australia's industrial middle management. The urgency of this need cannot be overemphasised. Short courses for middle management are available (for example,

through the Australian Institute of Management and through the plethora of management consulting firms). Short courses or one day seminars costing $250 (including lunch!) on 'motivation' or 'lateral thinking' are not what are required because they generally attract those who are already sympathetic. What is needed is a major, combined industry/TAFE new look at the continuing education needs of middle managers (including middle managers within TAFE) and the development of appropriate curricula.

12.10 The 7 July 1987 editorial of the Financial Review expressed this need most eloquently:

> Management in Australia has been disastrously unable to absorb the best traits of the national culture - easy mateship, informal communications, reasonable discussion - into its own tactical structure.
>
> In industrial relations it has blindly adopted the worst of archaic British practice and the worst of brutal American confrontationism to develop a structure that hampers any hopes of flexibility or open communications.
>
> The truth is that Australia has a half-developed management capability. Highly advanced in strict academic terms, perhaps, but still desperately lacking the breadth and consistent imagination to bring coherence to its act.
>
> With luck and a strong element of self-examination, the present problems facing the nation may encourage our managers to begin working seriously and urgently on developing an Australian style that is appropriate to the challenges they face.

12.11 One problem which has not been mentioned so far in this report is an attitudinal problem affecting the whole of Australia which arises from our Anglo-Saxon heritage. It has been discussed at length in another paper (Part E, Note 19) where the author strongly points out that Australia's distinction between 'education' and 'training' is a spurious one and should be abandoned. The following extract (see Part E, Note 2) is relevant to this report because it has importance for course development and implementation, particularly as far as the TAFE/industry partnership is concerned.

> The 'education' versus 'training' debate is a non-productive one. Training, or skills without knowledge, has some meaning for labourers who

are involved in repetitive activities in their jobs. This is a fast declining area of occupations in Australia. Vocational education particularly in TAFE must always impart knowledge skills and attitudes of relevance to particular occupations and industries. Hence TAFE, (and CAEs and universities increasingly) employ as lecturers those with successful experience in industry. Further it is the reason why (for example) TAFE in South Australia requires that all TAFE course development committees have a minority of TAFE Department employees on them. The majority is made up of industry and commerce representatives plus representatives of the other tertiary institutions, as appropriate.

Almost as spurious as the education/training debate is vocational/personal development dichotomy. I do not wish to under-estimate the importance and value of programmes (e.g. expressive arts, humanities) that have as their objective personal enrichment and educational liberalism. But to assume that vocational education is devoid of personal development is fallacious except where the lecturer is unsatisfactory. For many tertiary students the greatest potential for personal development is via vocational education.

All good education appeals to the head, the hand, and the heart (those who prefer jargon know these are cognitive, psychomotor and affective aims). To concentrate exclusively on the 'hand' will produce unthinking, moronic machines. To concentrate exclusively on the 'head' will produce people capable of doing little which is of practical use. The 'heart' must be catered for if we want our society to be humane. And in these difficult times, a humane approach is of paramount importance.

It is important that technological literacy and a positive attitude towards skill formation be developed at school. Although schooling is beyond the scope of this document, the need for fundamental changes to schooling cannot be ignored and must at least be mentioned here.

13. SHARING FACILITIES AND EQUIPMENT

13.1 Equipment is frequently donated to TAFE colleges by industry. Sometimes this equipment is second-hand, having

lost its usefulness to the donor. Where industry requires TAFE to train students to use particular equipment, it is perfectly reasonable to expect such equipment to be donated or loaned by the industries concerned, and this practice should continue to be encouraged. Any equipment loaned or donated should be available for use by industry -

- to conduct research;
- to carry out retraining programmes.

There are numerous examples of this and the procedure should be further encouraged. Three parallel reports deal with the matter in detail. (Part E, Notes 3(a)-(c))

13.2 Encouragement could take the form of offering tax relief to those companies donating equipment to a TAFE college. The present 150% taxation arrangement for research and development could be expanded to include the donation or loan of equipment to approved institutions; and all TAFE colleges should be given such approval. If generous taxation concessions are considered worthwhile for (for example) the film industry, surely concessions to cover donation and loan of equipment to TAFE colleges are <u>essential</u>. This point is also picked up in another report. (Part E, Note 3(b))

13.3 Facility sharing can include the following:

- industry occupying part of a TAFE college;
- TAFE staff teaching in industry;
- TAFE teaching annexes being placed in industrial locations;
- special facilities (such as skills centres) being built in industry, in a TAFE college or at a separate location;
- TAFE colleges selling courses and expertise to industry (fee for service programmes);
- industry using TAFE equipment for research.

The funding of these different approaches can be:

- through direct government funding;
- by leasing from the host organisation;
- through a foundation which is jointly administered;
- through college-based business enterprises.

A classification produced by another report (Note 3(c)) suggests the following ways of sharing physical facilities and people:

(a) In relation to people

i) staff may be employed by TAFE, and made available to industry by being:
- hired as consultants;
- employed by industry for 'refresher' purposes, or employed by industry on a secondment or leave-without-pay basis.

ii) Company staff may be made available to TAFE by being:

- hired as trainers;
- brought in to consult on the development of courses;
- required to work in TAFE on an exchange or transfer basis.

(b) In relation to physical facilities (including equipment)

i) the facilities are wholly owned by industry - and made available to TAFE by being:

- leased out of hours;
- 'donated' out of hours;
- leased at a realistic or 'market' cost;
- given to TAFE for a limited period, (as with broken equipment loaned for 'real' work to be undertaken in repairing it);
- made accessible for observation;
- made available for training purposes, but where the training is wholly by company staff, or where the training is wholly by TAFE staff;
- sold to TAFE.

ii) the facilities are wholly owned by TAFE and made available to industry by being:

- leased out of hours;
- 'donated' out of hours;
- leased at a realistic or 'market' cost;

- made accessible for observation;
- made available for training purposes, but where the training is wholly by company staff;
- made available for training purposes, but where the training is wholly by TAFE staff.

iii) the facilities are jointly owned by TAFE and industry, particularly through mechanisms such as:

- skills training centres;
- facilitator agencies;

where a variety of staffing methods again are possible.

13.4 One major issue which will not be developed here is that of privatisation of TAFE, whereby industry builds the college which is staffed by TAFE, or which is staffed privately and charges for its services (as in the case of the Japanese enterprise in Sydney). Such colleges are being planned for the UK where the first few have already been funded. The Open College, another example, is receiving Manpower Services Commission funding for the next three years but must then 'break even'.

PART D. CONCLUSIONS

14. CONCLUSIONS

14.1 The TAFE/industry partnership picture is very patchy. There are excellent examples of effective relationships in TAFE course development; but these are not widespread for TAFE course implementation. TAFE's expertise is rarely used by industry for either training programme development or implementation. TAFE's strengths lie with the expertise of its staff in developing courses and in its teaching facilities; its weaknesses are in maintaining strong, individual links with industrial developments and in teaching some of its courses requiring up-to-date equipment. Industry's potential strength lies in the availability of modern equipment and in the provision of a working environment; its weaknesses include its poor commitment to training and (especially) to retraining, and its minimal expertise in course development and implementation. Its equipment is also sometimes out-of-date.

14.2 One major way to strengthen the TAFE/industry partnership is to combine the training provided by TAFE and industry, to strengthen those components in both areas which are presently most effective, and to decrease (or scrap entirely) those components which are ineffective. In practical terms this would mean:

- the formation of the highest possible TAFE/industry/training policy committee at the state levels which would report direct to the relevant minister(s);

- the commissioning of TAFE by industry to develop and help implement all components of publicly accredited industry training curricula and to commission TAFE to help develop other training programmes. One way to achieve this would be to second TAFE staff to industry;

- the provision by industry to TAFE of modern equipment either within a TAFE college, within a skills centre, or within industry.

From its own resources, TAFE would continue to provide broad training and adaptable skills. It could further be commissioned by industry to develop and (where industry

was unable) to mount skill-specific training. In both cases, the necessary major equipment would be provided by industry. The overwhelming evidence from the interviews conducted is that TAFE is generally highly regarded; and that industry is keen to strengthen its links with colleges which, for a wide variety of reasons, seem to have weakened at the lecturer level over recent years. The changes listed above and those discussed earlier in the report would help to improve relationships.

15. ACKNOWLEDGEMENTS

15.1 The advisory committee consisted of representatives from all major interest groups. Committee members were:

Mr John Braddy
Dr Bill Hall
Mr Geoff Hayton
Mr Graham Mill
Mr Don Morrison
Mr Trevor Prescott, AM
Mr Roy Wallace.

The help given by the large number of people interviewed, or who provided written submissions, is gratefully acknowledged. In particular, Mr John White's comments on the draft were appreciated.

PART E. NOTES

1. There were four main stages to the project.

   Stage 1 involved reading as widely as possible on the future of Australian industry and commerce and using the results of that reading to elicit information from those in a position to have realistic ideas. This included methods available for monitoring change and proposals for models which would have future relevance.

   In parallel with this was the collecting of information on present TAFE/industry liaison, together with an evaluation of the present arrangements.

   At Stage 2 a small group of experts (the advisory committee) met for one day for discussion based on Stage 1 prepared papers.

   Stage 3 was the production of a draft report for discussion by various interested groups; and Stage 4 was the production of this final report.

   A non-quantitative research approach was used. First, the questions to be answered were listed; second, the network of interested groups was drawn up; third a list of researcher 'preconceptions' was produced, so that these did not unduly affect the interviews or the analyses. A list of individuals to interview was then drawn up together with the questions to ask. Notes were taken at interviews and then rewritten afterwards. There were six researchers involved. Four concentrated on ways in which TAFE and industry could share 'facilities' (buildings, equipment and people); one concentrated on present industry training models; and the author of this report covered the other parts of the project's aims plus a distillation and co-ordination of the longer reports produced by the other researchers. The author of this report co-ordinated the total project. Other, parallel, research was being conducted, including that shown in Note 3(d).

2. The glossary referred to is:

   Parkinson, K. (1986) A glossary of terms used in TAFE, Melbourne: Nelson-Wadsworth.

   The glossary discusses the two terms and the relationship between education and training. It concludes that the

adoption of a single word (education) would be preferable. Perhaps the term 'vocational education' might be used instead of 'training', but with 'vocational' being dropped in time? The whole 'education' versus 'training' debate is a fruitless one and is discussed at some length in:

Hall, W.C. (1986) Education and training: Some lessons from England, Adelaide: TAFE National Centre for Research and Development. An extract from that paper is given in Section 12.11 of this report.

3. The separate reports are as follows:

   (a) Ottrey, G. and Hutchinson, L. (1987) Cross portfolio project on use of private sector facilities in training, Adelaide: Department of TAFE (internal document only).

   (b) Gallagher, A.P. (1987) Ways and means of promoting shared facilities between TAFE and industry in Western Australia, Adelaide: TAFE National Centre for Research and Development.

   (c) Sheldrake, P. (1988) The technical and further education system and industry: joint use of facilities, Melbourne: Nelson Wadsworth.

   (d) Mageean, P. (1988) Integrating on and off-the-job components of traineeships, Melbourne: Nelson-Wadsworth.

   (e) Bone, J. (1988) Training models used in industry, Melbourne: Nelson-Wadsworth.

4. In all, 17 interviews were conducted in industry; senior staff at three TAFE colleges were interviewed (in association with another project); one trainer training organisation was interviewed; all 110 National ITCs were contacted and detailed replies were received from ten; heads (or senior members) of two state training authorities, nine government departments and one trades and labour council were interviewed; and detailed information was obtained from five state TAFE authorities. Nine members of the United Kingdom Manpower Services Commission and the Deputy Chief Officer of the UK's Further Education Unit were interviewed. There was correspondence with the Deputy Director of the National Center for Vocational Education (Ohio). Additional interviews were held for other components of the research (Note 3) and these are summarised in those reports.

Examples of publications consulted are:

(a) The Economist survey of Australia, 7-13 March, 1987;

(b) OECD. (1988) The future of vocational education and training, Paris: OECD;

(c) ACTU (1987) Australian reconstructed, Canberra: Australian Government Publishing Service;

(d) Dawkins, J.S. and Holding, A.C. (1987) Skills for Australia, Canberra: Australian Government Publishing Service.

(e) Australian Manufacturing Council (1986) Future directions for Australian manufacturing industry: a broad strategy framework, Canberra: Australian Government Publishing Service.

5. Considerable documentation was received from TAFE authorities showing formal links with industry for curriculum development. Detailed systems structures were received and examples of reports on successful TAFE/industry liaison were obtained. These included reports from separate colleges.

6. Until recently, very few National ITCs had direct TAFE input. There is now some direct TAFE input (for example, on Road Transport and Electrical/Electronics) and discussions have indicated that more National ITCs will invite TAFE membership.

7. Sections 5.2-7 are based on extracts from a much longer report:

Hall, W.C. (1986) Australian experiences in providing training and re-training to adults who seek employment and re-employment in the wake of rapid technological development, taking into full account all aspects of general education, Paris: UNESCO.

8. A summary and evaluation of the training models presently used in industry are given in:

Bone, J. (1988) Training models used in industry, Melbourne: Nelson-Wadsworth.

This report was critical of presently used training models (that is, when any kind of structured approach to training was used).

9. A detailed study by Hanly, J.R. (1986) Private enterprise investment in training, Canberra: National Training Council, showed how productivity is affected by lack of training. An unpublished National Training Council report by Dr P. Steidl of the University of Adelaide showed what little training was being done. This research also showed that a large number of employers did not understand the meaning of 'productivity' and could see no link between training and productivity.

10. A separate research project dealt with the integration of on-the-job and off-the-job training within traineeships. Details are:

Mageean, P. (1988) Integrating on and off-the-job components of traineeships, Melbourne: Nelson-Wadsworth.

This report has shown the following:

Critical elements in the successful co-ordination of on and off-the-job training in traineeships:

- Colleges and industry must see each other's contribution/program as valuable. Needs of both sectors, and the benefits to both, must be appreciated by both as each will have to contribute time, resources and effort in this co-operative program over the whole traineeship period. It will not be enough simply to set up the program: both sectors will need to maintain their enthusiasm throughout. It is important that both teachers and supervisors are committed to the concept of traineeships, and to the particular program in which they are involved.

- Record keeping is important. This must be clear and concise and the trainee, his/her supervisor, teachers and the co-ordinators should all have ready access to it.

- Before the program is begun, both TAFE and the industry's roles, responsibilities and goals should be defined as a basis for thorough planning. The special needs of the industry should be surveyed and educational objectives married to these.

- A clearly written agreement describing the contribution, duties and responsibilities of each sector would help each to see the traineeship program as a joint undertaking.

Visits to each other's organisation both before and during the course would increase their understanding of each other, and so foster the integration of on and off-the-job training.

- Maintenance of three-way communication between the trainee and those involved at the college and in industry, is essential. Clear lines of communication should be planned and established. To do so, the roles, responsibilities and aims of each participant should be defined, and understood by each other.

- To maintain credibility it is important that TAFE teachers and industry instructors have, in addition to their commitment to the program, high technical competencies and are provided with appropriate certificated training. In addition, the TAFE teacher needs to know about the relevant industry. It is crucial that the traineeship program is not given to individuals simply because they have a light work load and can therefore be most easily spared. Those involved in traineeships from both TAFE and industry must be able to gain the respect of, and relate well with, the trainees. Both TAFE teachers and industry instructors must be good communicators, able to provide high quality instruction.

- Programs provided by TAFE should be well researched and specifically tailored to the needs of industry, yet sufficiently broad-based to allow trainees flexibility in their careers and to form a basis for future advancement. The course content should be determined by both TAFE and industry. Sufficient time must be allowed to provide adequate on and off-the-job supervision.

- Programs should be kept up-to-date and reflect the 'state-of-the-art' in the industry. They should be constantly monitored, evaluated and refined.

- Senior staff in both TAFE and industry must show more than just token interest in the traineeships. For example, in a number of industries in which the integration of on and off-the-job training has been

successful, top executives have been members of the TAFE college council and/or belonged to committees to devise curricula for traineeships.

Similarly, senior TAFE staff should display their interest in, and commitment to, the traineeship program. This involvement by senior staff gives the traineeship program greater credibility throughout the organisation.

- TAFE and industry must both be as flexible as possible in meeting each other's needs. TAFE programs should be scheduled to fit in, as far as possible, with the needs of industry - this may necessitate classes being held outside normal hours or during holiday times and in locations convenient to employers. Courses should be put on in colleges which are as close as possible to the relevant industry. One example of a successful co-operative measure is in printing traineeships in Victoria. The multi-million dollar presses are too expensive and too large for TAFE to provide, instead the students and teacher are bused to one of the factories where they have use of the press, under the firm's supervision, during specified times. This has only been possible because of the flexible approaches by the college and the industry and has greatly enhanced the relevance of the skills taught by TAFE.

11. The publication OECD, (1988) The future of vocational education and training, Paris: Organisation for Economic and Cultural Development makes the claim that (p.21):

> The economy has to produce goods and services, and people have to have jobs. It seems, however, that labour market authorities and employers often look to vocational education and training to supply their diverse needs for manpower but are not in fact able to specify their needs precisely.

12. The issue of 'accountability' is discussed in some detail by:

White, J.L. (1987) Educational accountability and the need for comprehensive evaluation in TAFE, Melbourne: Nelson-Wadsworth.

John White was the TAFE National Centre's first Senior Research Fellow.

13. A comprehensive evaluation of national core curricula was conducted by the TAFE National Centre in 1986/87 at the request of the Conference of TAFE Directors. The research is fully reported in:

Parkinson, K. and Broderick, J.S. (1988) An evaluation of the implementation of national core curricula in Australia, Melbourne: Nelson-Wadsworth.

14. There are four publications. A summary of the whole research is given in:

Anderson, A. and Jones, N. (1987) TAFE curriculum research: A review of group process methods - summary, Melbourne: Nelson-Wadsworth.

15. OECD (1984) Industry and university: new forums of co-operation and communication, Paris: OECD

16. The Technology Monitor is produced by an MSC funded research team at the University of Aston, Birmingham, United Kingdom.

17. The main characteristics of open learning are that:

- the needs of the individual learner and individual employer are of more importance than the needs of the institution;
- the individual chooses when to study, where to study, what to study, how to study and the speed with which to study;
- the individual chooses the most appropriate support he/she requires (for example, tutor, colleague, supervisor, etc.).

Good summaries of research into, and examples of, open learning are provided in the journal Open Learning which is published by Longman, United Kingdom.

18. Hall, W.C. (1986) The continuing education needs of academic staff: full-time TAFE lecturers, Melbourne: Nelson-Wadsworth.

19. Hall, W.C. (1986) Education and training: Some lessons from England, Adelaide: TAFE National Centre for Research and Development.